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From (1), (2), and (3), we have

$$y = -8a^3 - 2ap + q, \tag{4}$$

$$y = q \pm \frac{2}{3}\sqrt{\frac{b^2 - p}{3}}\,(4b^2 - p). \tag{5}$$

In (4) a and y are variables, in (5) b and y. Constructing the graphs of (4) and (5) we obtain readily the complex roots of $x^3 + px + q = 0$.

8. *Applied Mathematics for the Average Student.* By Professor J. H. Scarborough, Missouri State Normal School, Warrensburg.

9. *The Solution of Linear Differential Equations with Periodic Coefficients.* By Dr. James E. McAtee, William Jewell College, Liberty.

Dr. McAtee made a report on a paper by Professors F. R. Moulton and W. D. MacMillan of the University of Chicago on "The Solution of Certain Types of Differential Equations with Periodic Coefficients." This paper is to be found in Vol. 33 of the *American Journal of Mathematics.* Paul R. Rider, *Secretary.*

REPORT OF ORGANIZATION OF THE ILLINOIS SECTION.

At the call of Professor H. E. Slaught the following persons met in Room 38 of Ryerson Physical Laboratory, University of Chicago, at 4:30 P.M., on December 27, 1917, to discuss a plan for organizing an Illinois Section of the Mathematical Association of America: I. A. Barnett, G. A. Bliss, H. E. Cobb, C. E. Comstock, M. W. Coultrap, A. R. Crathorne, D. R. Curtiss, A. Emch, J. A. Foberg, J. O. Hassler, Miss Nelle Ingels, E. B. Lytle, M. McNeill, H. L. Olson, H. L. Rietz, Mr. Scheibler, J. B. Shaw, C. H. Sisam, E. J. Townsend, and E. J. Wilczynski.

Mr. J. A. Foberg, of Crane Junior College, Chicago, was unanimously elected chairman of the meeting; he appointed Mr. E. B. Lytle secretary.[1] A motion of Professor Townsend that an Illinois Section be organized was unanimously adopted. Among other plans it was suggested but not determined that the meetings of this new Illinois Section be held at the time and place of the meetings of the Illinois Academy of Science.

On motion of Professor Wilczynski the chairman was authorized to appoint four members who with the chairman shall constitute an executive committee with full power to arrange the time, place and program for the first meeting of the Illinois Section. In addition to the chairman, the members of this committee are: Nelle L. Ingels, Greenville College; C. E. Comstock, Bradley Polytechnic Institute; G. T. Sellew, Knox College; and L. S. Shively, Mount Morris College.

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[1] Mr. Lytle was appointed secretary at the close of this meeting, so that these minutes are written up from memory.

On motion of Professor Bliss the executive committee just formed was directed to appoint a committee of three to report at the first meeting and to present nominations for permanent officers of the Section.

ERNEST B. LYTLE,
Secretary.

BOOK REVIEW.

SEND ALL COMMUNICATIONS TO W. H. BUSSEY, University of Minnesota.

A First Course in Higher Algebra. By HELEN A. MERRILL and CLARA E. SMITH. The Macmillan Company, New York, 1917. xiv + 247 pages. $1.50.

In this work written with the idea that "Higher Algebra, to be worthy of the name, must employ advanced methods," we find the plan well carried out. It is written, too, with the conscious "hope that there is nothing to be unlearned in later work." Not only have the authors succeeded in expressing the material in form which will not have to be unlearned, but this text gives us an illustration of the fact that methods often reserved for advanced work can very profitably be applied to elementary college subjects, to the great advantage of the student for the work in hand as well as for the power gained for more advanced work, by the familiarity, secured here, with methods which will be used on more intricate material in later courses.

While this text omits very little that is given in the usual college algebra, it places before the student, in minimum space and with extreme clearness, most of the usual college algebra material and much of other material often found incidentally by the student in more advanced courses, or not found at all. As an instance of the careful presentation of a subject often slighted, and sometimes omitted, could be mentioned the chapters on the number system. The first of these, the chapter on rational numbers, precedes other work, and contains, in addition to the usual material, some of the simple theorems on integers, which are very useful for factoring; while the chapter on irrational numbers comes later where it can receive a careful treatment by the theory of limits, sufficiently detailed to secure the student a definite and clear understanding.

In the second chapter, which does not differ much from the usual somewhat condensed work on permutations, combinations, and probability, the student begins work on problems of which there is a wholesome number throughout the text. Many of the problems given in various chapters serve for the further development of the text.

While the chapter on determinants is clear and well developed on the whole, articles 48 and 50 suggest conflicting ideas of a minor. It seems to the reviewer somewhat unfortunate that the student is not given a greater familiarity with determinants of order higher than the third, since determinants have so many interesting properties that might well serve as one of the subjects "to arouse curiosity and to lead students to find for themselves what lies just beyond."